Il24 Cas9-CKO Strategy

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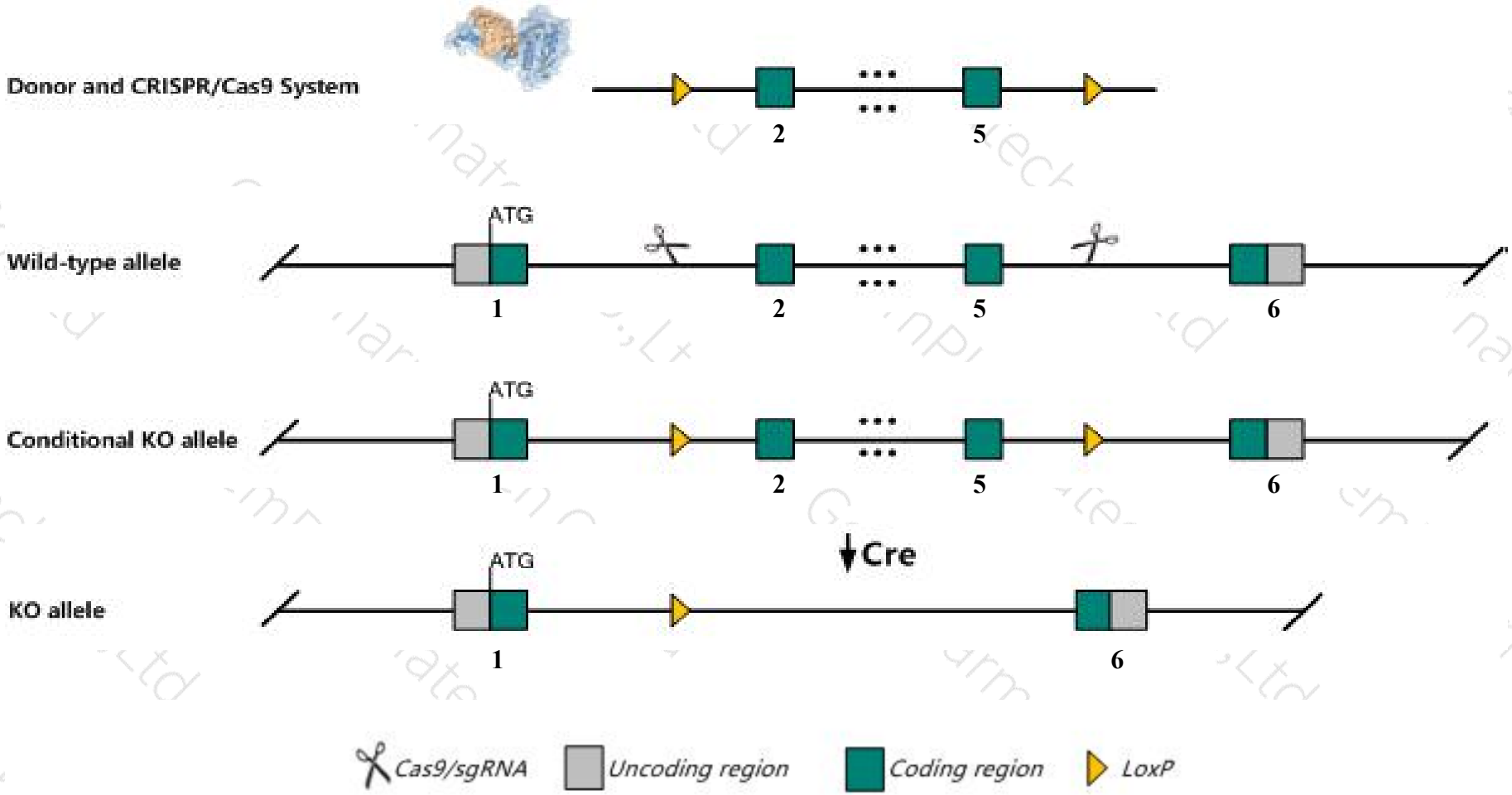
Project Overview

Project Name	***Il24***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Il24* gene. The schematic diagram is as follows:



Technical routes

- The *Il24* gene has 4 transcripts. According to the structure of *Il24* gene, exon2-exon5 of *Il24-201* (ENSMUST00000121040.7) transcript is recommended as the knockout region.The region contains 491bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Il24* gene. The brief process is as follows:sgRNA was transcribed in vitro, donor vector was constructed.Cas9, sgRNA and Donor were microinjected into the fertilized eggs of C57BL/6JGpt mice.Fertilized eggs were transplanted to obtain positive F0 mice which were confirmed by PCR and sequencing. A stable F1 generation mouse model was obtained by mating positive F0 generation mice with C57BL/6JGpt mice.

- The flox mice was knocked out after mating with mice expressing Cre recombinase, resulting in the loss of function of the target gene in specific tissues and cell types.

Notice

➢ According to the existing MGI data,Mice homozygous for a knock-out allele display normal induction of epidermal hyperplasia in response to intradermal IL-23 treatment.

➢ The *Il24* gene is located on the Chr1. If the knockout mice are crossed with other mice strains to obtain double gene positive homozygous mouse offspring, please avoid the two genes on the same chromosome.

➢ This Strategy is designed based on genetic information in existing databases.Due to the complexity of biological processes, all risk of loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological level.

Gene information （NCBI）

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Il24 interleukin 24 [Mus musculus (house mouse)]

Gene ID: 93672, updated on 24-Feb-2019

Summary

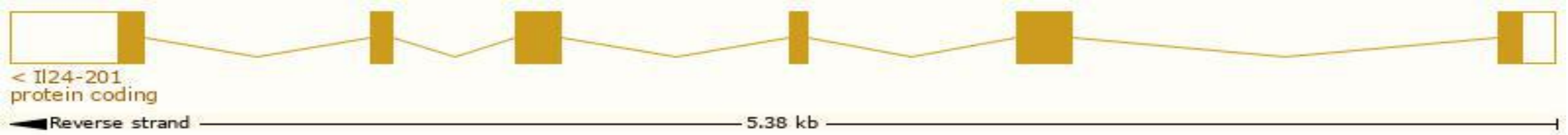
Official Symbol	Il24 provided by MGI
Official Full Name	interleukin 24 provided byMGI
Primary source	MGI:MGI:2135548
See related	Ensembl:ENSMUSG00000026420
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	FISP, Mda-7, Mda7, St16
Expression	Low expression observed in reference datasetSee more
Orthologs	human all

Transcript information（Ensembl）

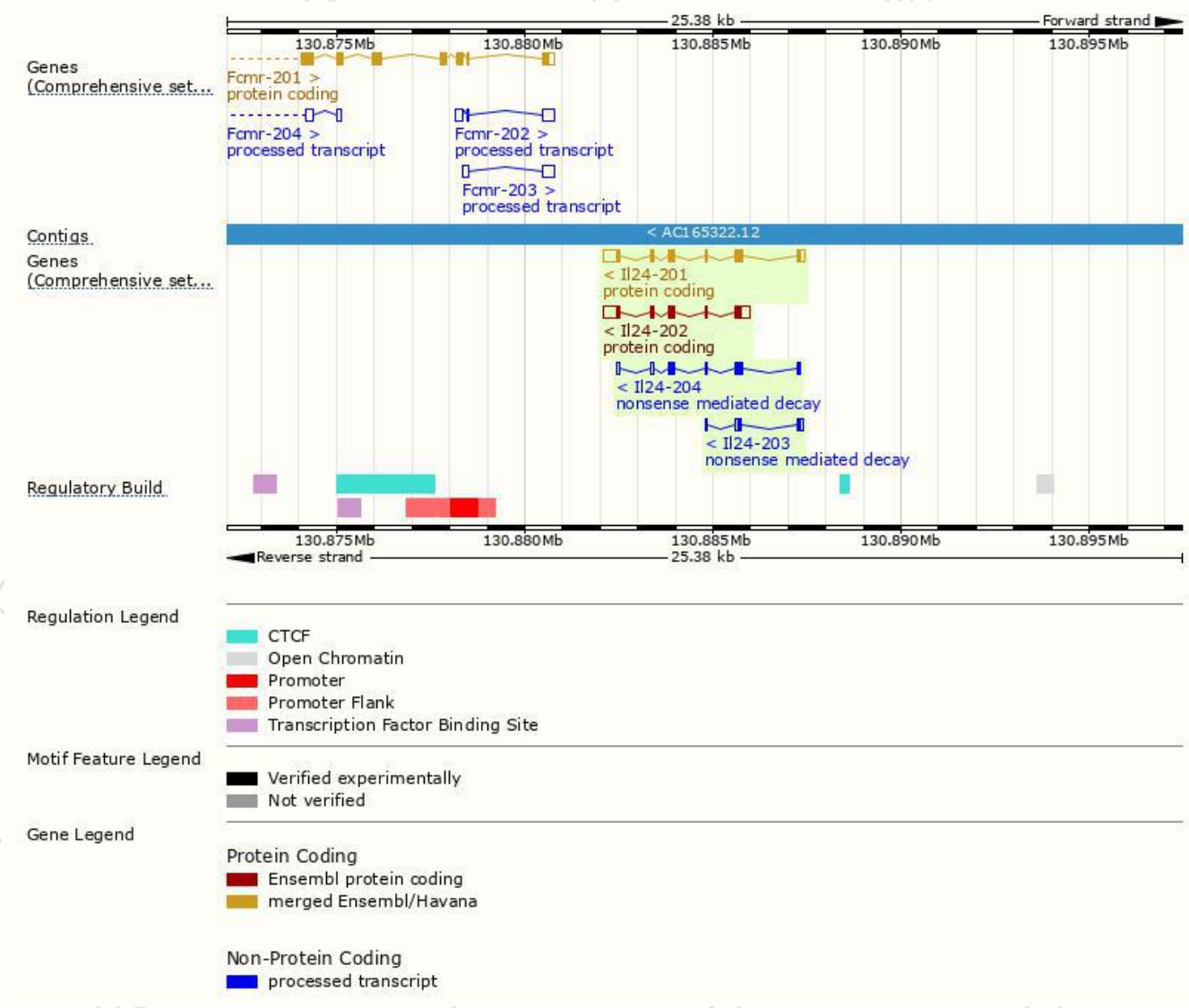
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Il24-201	ENSMUST00000121040.7	1159	220aa	Protein coding	CCDS15262	A0A0R4J1N5	TSL:1 GENCODE basic APPRIS P2
Il24-202	ENSMUST00000187650.6	1182	181aa	Protein coding	-	A0A087WQD7	TSL:1 GENCODE basic APPRIS ALT2
Il24-204	ENSMUST00000191279.1	634	158aa	Nonsense mediated decay	-	A0A087WRY6	TSL:1
Il24-203	ENSMUST00000188148.1	391	53aa	Nonsense mediated decay	-	A0A087WPT5	TSL:5

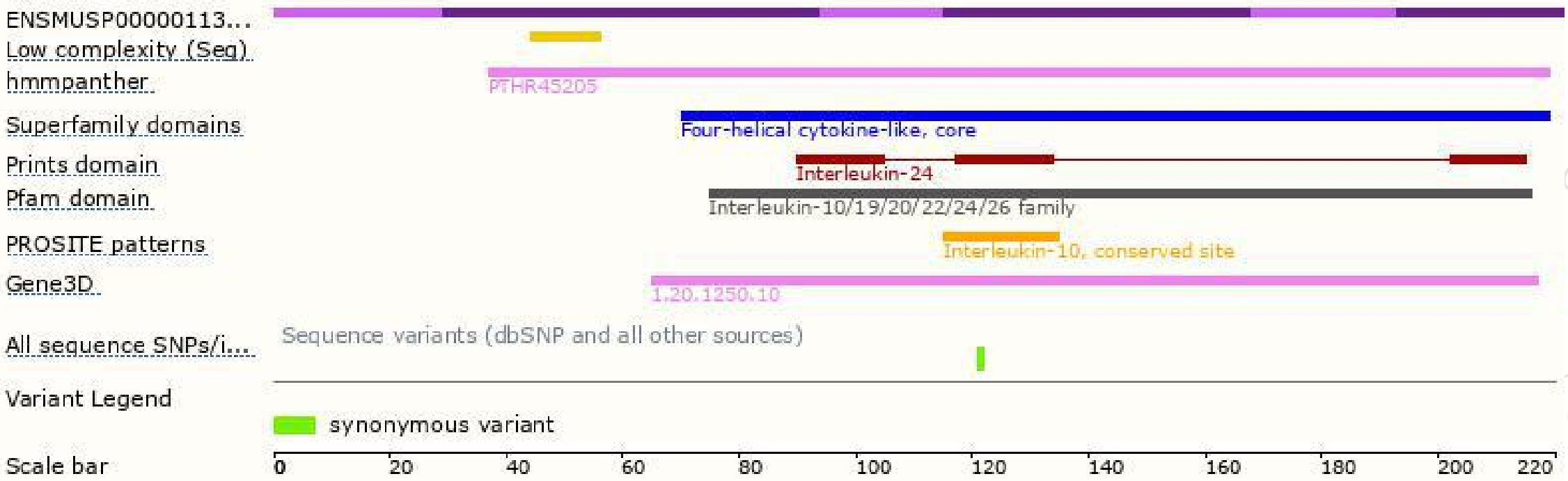
The strategy is based on the design of *Il24-201* transcript,The transcription is shown below



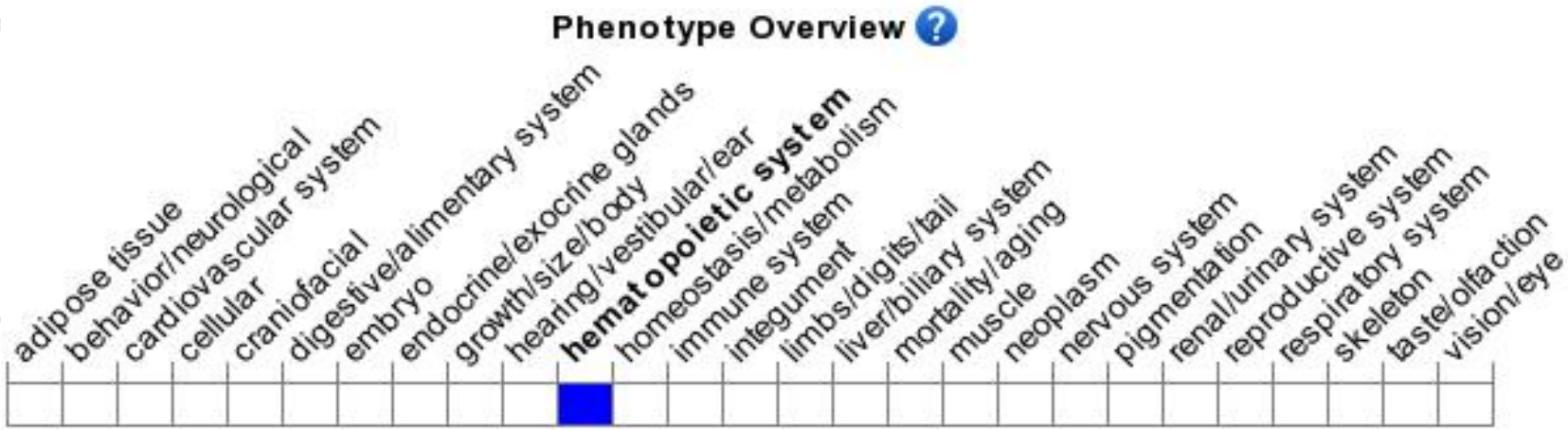
Genomic location distribution



Protein domain



Mouse phenotype description(MGI)



Phenotypes affected by the gene are marked in blue.Data quoted from MGI database(http://www.informatics.jax.org/).

According to the existing MGI data,Mice homozygous for a knock-out allele display normal induction of epidermal hyperplasia in response to intradermal IL-23 treatment.

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If you have any questions, you are welcome to inquire.

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